

<b>PALOMAR ENERGY PROJECT (01-AFC-24)</b> <b>CEC STAFF DATA REQUEST NUMBER 60</b>	
<b>Technical Area: Soil and Water Resources</b>	<b>Response Date: April 8, 2002</b>

**REQUEST:**

Please provide a complete description of the hydrologic setting, both in writing and on a hydrostratigraphic map that characterizes the physical groundwater bodies (i.e.; aquifers) and geologic structures of the Escondido Creek Hydrologic Area. This information is to include all geomorphic strata and groundwater depths within the hydrologic area.

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**RESPONSE:**

A map of the hydrogeologic subarea is attached (Figure 60-1). Information on the hydrologic setting for the project site and the Escondido Creek hydrologic area was obtained from a US Geological Survey (USGS) 1987 report (Geohydrology of the Escondido Hydrologic Subarea, San Diego County, California, Linda R. Woolfenden, USGS WR1-88-4223). This report was provided by the USGS and was identified by the USGS as the latest information that is publicly available relating to the hydrologic setting in the immediate area of the project site.

The geology of the water basin Subarea consists of crystalline rocks, residuum (highly weathered crystalline rock) and alluvium (see Figure 60-1). The crystalline rocks are exposed in approximately 65 percent of the Subarea and include granodirites, tonalets and small exposures of gabbors and diorites. The residuum can be up to 110 feet thick and residuum covers approximately 25 percent of the Subarea. The alluvium occurs along streams and other low-lying areas and covers approximately 10 percent of the Subarea. Driller's logs indicate that the maximum thickness of alluvium is 80 feet. The Subarea encompasses approximately 44-square miles and is the drainage basin for Escondido Creek. The project site is in the southeastern third of this Subarea. Groundwater was reportedly encountered approximately 20 feet below ground surface in the residuum and alluvium. Beneath the crystalline rocks at the site it was shown at the elevation of 650 feet above mean sea level in the spring of 1987 (Figure 60-1). Groundwater typically flows from the crystalline rock and residuum into the alluvium. Groundwater flows from the east to the west in the alluvium in the Escondido area.

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Groundwater was sampled from 20 wells in the Subarea in 1987. Dissolved solids concentrations were from 720 to 4,500 mg/l. Nitrate as nitrogen concentration in water from wells ranged from 1.0 to 86.0 mg/l. The water was classified as mixed chemical types, the dominant cation was sodium and the dominant anions were chloride and sulfate. Water from the Escondido Creek is also mixed chemical type dominated by sodium and chloride. Much of the Escondido Creek channel is concrete lined.

Chemical analysis of water was obtained from Lake Wohlford, which is situated approximately 8 miles northeast of the project site, indicated a total hardness of 154 mg/kg, sodium at 75 mg/kg, potassium at 4 mg/kg, calcium at 44 mg/kg, magnesium at 11 mg/kg, chloride at 48 mg/kg, bicarbonate at 199 mg/kg, sulfate at 68 mg/kg, nitrate as nitrogen at 0.45 mg/kg and dissolved solids at 389 mg/kg.

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